

## REMARKS

Claims 1-28 are still pending in this application. Reconsideration of the application is earnestly requested.

The Office action has rejected claims 1-26 under §102(e) as being anticipated by *Jacobson* (U.S. Patent No. 7,020,598). Although the Examiner's arguments have been carefully considered, Applicant respectfully traverses this rejection as explained below.

### The Present Invention

The summary of the invention beginning at page 3 discloses that embedding a microprocessor directly into the PLD allows for faster testing or debugging. Figure 3 shows clearly that the microprocessor 108 is embedded inside the PLD 16 and that the PLD also includes memory and programmable logic. Further, step 304 discloses embedding the microprocessor inside the PLD. The embedded microprocessor is then used for direct testing or debugging of the PLD of which it is inside.

### The Cited Art Distinguished

The final Office action points out that the diagnostic microcontroller 105 of *Jacobson* is within the same packaging (electronic device 100) as the programmable logic device 210. Applicant agrees that both the microcontroller and the programmable logic device are within the same electronic device, which is a mobile telephone, personal digital assistant, switching equipment, pager, computer, cellular base station, radio equipment, satellite, etc. But, the Office action then takes the position that the microcontroller being within the same packaging as the programmable logic device anticipates the independent claims that clearly require a microprocessor within a programmable logic device. Applicant disagrees that a microcontroller being next to a programmable logic device is the same thing as a microcontroller being inside the programmable logic device. Independent claims 13 and 20 and dependent claims 27 and 28 require that the microprocessor be embedded inside the programmable logic device in case there was any doubt about the location of the microprocessor.

Further, the electronic device 100 (inside of which are located the diagnostic microcontroller 105 and the programmable logic device 210) is a relatively large item such as a telephone, computer or even a satellite. The electronic device is not an integrated circuit. Because the electronic device is a relatively large item, this is a further indication that the inclusion of both a microcontroller and a programmable logic device inside the electronic device is not the same thing as the microcontroller being inside the programmable logic device. It's not as if the microcontroller and the programmable logic device are both inside a tiny integrated circuit.

Applicant asserts that *Jacobson* discloses quite the opposite of embedding a microprocessor within the PLD. Figure 1 of *Jacobson* shows an electronic device 100 that includes a microcontroller 105 in communication with a programmable logic device 110. Clearly, the microcontroller 105 is outside of the programmable logic device 110: the microcontroller is not embedded inside the PLD. Column 1 of *Jacobson* makes clear the distinction between PLDs and electronic devices.

The Office action at the bottom of page 2 also points out that "The technology today allows multiple processors and programmable logic devices within the same packaging as is well known in the art." Applicant does not dispute that *Jacobson* shows a diagnostic microcontroller next to a programmable logic device within a larger electronic device such as a mobile telephone. If the Office takes the position, however, that multiple processors and programmable logic devices are present within an integrated circuit packaging, then Applicant requests that a specific reference be cited or that an affidavit under 37 CFR 1.104(d)(2) and MPEP 2144.03 be provided specifying that position.

The Office action also asserts that *Jacobson* at column 15, lines 41-47 "does not teach any desirability to locate the microcontroller outside of the electronic device as alleged by the Applicant." Applicant points out that lines 44-47 state "the diagnostic microcontroller and associated communication architecture may be formed as a device separate from the electronic device rather than being embedded therein." Thus, since the microcontroller is separate from the electronic device and isn't embedded within it, it must be located outside of the electronic device.

Finally, the Office action points out that lines 49-51 of column 15 disclose "reconfiguring a programmable logic device within the electronic device to act as the diagnostic microcontroller." Applicant suggests that the Office is misinterpreting the statement. The whole

point of *Jacobson* is to use a separate diagnostic microcontroller within an electronic device to help troubleshoot programmable logic devices 210, 215 and 220 (for example). This statement suggests that one of the programmable logic devices could be reconfigured to act as the diagnostic microcontroller and then would be able to diagnose the rest of the system. For example, this statement suggests that programmable logic device 210 could be reconfigured to function as the diagnostic microcontroller that then would be able to diagnose programmable logic devices 215 and 220. But, even if this were to occur, there still would be no microprocessor embedded within one of the programmable logic devices along with programmable logic, memory, a test routine, etc. as required by the independent claims. In any case, this single sentence at lines 49-51 does not provide an enabling disclosure that may then be used to reject the claims.

Claim 1 specifically requires a programmable logic device that comprises "a hardcoded microprocessor in communication with programmable logic." In other words, the microprocessor is embedded inside the PLD. Claim 7 likewise requires a microprocessor inside the PLD. Claim 13 specifically requires "manufacturing a PLD that includes programmable logic, an embedded microprocessor and associated memory." Claim 20 similarly requires "mounting in a test socket a PLD that includes user logic, an embedded microprocessor and associated memory." Claims 13 and 20 thus require a microprocessor embedded within the PLD.

For all these reasons, it is respectfully submitted that *Jacobson* does not teach or suggest (and in fact teaches away from) a programmable logic device that includes a microcontroller for testing or debugging purposes as required by independent claims 1, 7, 13 and 20.

#### Dependent Claims

Since the dependent claims 2-6, 8-12, 14-19 and 21-28 depend from the independent claims, it is respectfully submitted that they are each patentable over the art of record for at least the same reasons as set forth above with respect to the independent claims. Further, each of the dependent claims require additional features that when considered in light of the claimed combination further distinguish the claimed invention from the art of record.

Request for Reconsideration of Finality of Previous Office Action under MPEP 706.07 (d)

The previous Office action was indicated as being final. Applicant respectfully requests that the Examiner reconsider the finality of that action because the cited reference does not disclose the required limitations as discussed above.

Reconsideration of this application and issuance of a Notice of Allowance at an early date are respectfully requested. If the Examiner believes a telephone conference would in any way expedite prosecution, please do not hesitate to telephone the undersigned at (612) 252-3330.

Respectfully submitted,  
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